COMMUNICATIONS EQUIPMENT MODIFICATION NOTE 44 (for Electronics Technicians)
Engineering Division
W/OSO321:TES

SUBJECT	:	Console Replacement System (CRS) Output Channel Expansion
PURPOSE	:	To expand the capabilities of the CRS system from a Large 7-channel to a Maximum 13-channel configuration.

SITES   :   <u>Site Name</u>   <u>SID</u>   <u>Org. Code</u>
AFFECTED   WFO Des Moines, IA   DMX   WR9546

EQUIPMENT   :   CRS (B440)
AFFECTED

PARTS REQUIRED   :   The parts required will be issued to each site by W/OSO321 from the National Logistics Support Center (NLSC) under the applicable approved site-specific Request for Change.

(1) Front-End Processors (FEP) Computer (ASN: B440-2A2)
(1) FEP hard disk drive (ASN: B440-2A2A8-FEP)
(1) LAN board (ASN: B440-1A8A10)
(1) LAN cable segment (ASN: B440-2W1)
(1) BNC tee connector (ASN: B440-4J1)
(6) DECtalk card (ASN: B440-2A2A11XX)
(6) Audio Switch Module (ASM) cards (ASN: B440-2A6A3)
(6) DECtalk-ASM audio cable (ASN: B440-4W12)
(1) NWRSAME Encoder-ACP interface cable (ASN: B440-1A5W4)

PARTS SUPPLIED   :   The following parts are to be provided by the site:
BY THE SITE

Six Transmitter audio Output Cables
One NWRSAME Encoders (if available)
Cable Labels as needed

TOOLS AND   :   #1 and #2 Phillips screwdrivers
TEST EQUIPMENT   Test ASCII Database provided by W/OSO321
REQUIRED   Small flat blade jewelers screwdriver
RMS voltmeter/dB meter
600-ohm dummy load with a RJ-11 plug attached
Anti-static work station kit

TIME REQUIRED   :   4 hours

EFFECT ON OTHER   :   None
INSTRUCTIONS

AUTHORIZATION :   The authority for his modification is Request For Change NWS504D.
VERIFICATION   :   This procedure has been verified at WSO San Angelo, TX,
STATEMENT   WFO Indianapolis, IN., WSFO Peachtree City, GA and WSH Silver
            Spring, MD.

GENERAL   :   This procedure contains the instructions to add output channel(s)
            to the CRS system and is contained in the attachments.

PROCEDURE   :   The procedure for implementing this modification is contained in
            attachment **A**. Attachment **B** (CRS Hardware Drawings) is attached
            for reference. Attachment **C** is attached to verify the physical
            configuration before applying power.

REPORTING   :   Report completed modification on WS Form A-26,
INSTRUCTIONS   Maintenance reporting System, using the instructions in Engineering
            Handbook No. 4 (EHB-4), part 2, appendix I as follows:
            Use equipment reporting code CRSSA in Block 7.
            Report the ASN and NSN for the following line replaceable units (LRU)
            in lines 1 through 3, of Block 13:
            1 FEPs (2A2); 6 DECtalk Cards (2A2A11); and 6 ASM cards (2A6A3).
            Report the modification number in block 17a as 44. Report Serial
            Numbers for each of the following in lines 1 through 13 of Block18:
            1 FEP (2A2);6 DECtalk Cards (2A2A11); and 6 ASM Cards (2A6A3).

            See attachment **E** for a completed sample of WS Form A-26,
            Maintenance Record.

John McNulty
Chief, Engineering Division

Attachment A - Procedure
Attachment B - CRS Hardware Drawings
Attachment C - New Configuration Physical Verification
Attachment D - Modification Data Pad
Attachment E - A-26 Sample Form

Attachment A

Procedure

Modification Procedure

Overview

This modification note provides instructions for expanding a CRS from a LARGE 7-channel configuration to a MAXIMUM 13-channel configuration. The procedure is presented in seven parts:

1) CRS System Power-down Procedure.

2) Equipment Upgrade Procedure.

3) CRS System Power-up Procedure.

4) Operator Terminal Logon.

5) Update the SNQM configuration file.

6) Loading The CRS Test Database from the ASCII File.

7) ASM Card Alignment.

A description of a CRS MAXIMUM 13-channel (new) configuration is presented in attachment **C**.

CRS drawings, referenced in various procedural steps, are provided in attachment **B**.

Procedure:

NOTE:	**Read the entire procedure before proceeding with the actual modification.**

NOTE:	**Preliminary setup of the new FEPs, steps 2.1 through 2.2d maybe performed prior to shutting down the system. This will save downtime of a CRS system that is currently operational**.

PART 1 - CRS SYSTEM POWER-DOWN PROCEDURE

1.1   CRS Application Shutdown Procedure

   a. Click on the **System** menu and click on **Stop System**.

   b. Wait until all icons on the *CRS System Status* menu turn red.

1.2   UNIX Shutdown Procedure

The shutdown of the CRS application is just one task before the graceful power-down. After stopping the CRS application software, implement a "controlled/orderly UNIX shutdown with NO automatic reboot" on the main processors (MP), and have a "controlled/orderly UNIX shutdown" on all FEPs. After this controlled/orderly UNIX shutdown on all processors, start powering down the MPs first and then the FEPs.

When powering down the MPs, begin with the "Master" and then do the "Shadow". After successfully powering down the MPs and FEPs, the remaining CRS hardware devices, via their respective power switches, can then be powered down. Follow the procedure below to perform the UNIX shutdown.

Specific steps:

   a. Click on the **Maintenance** menu in the main CRS Menu. A Maintenance pull down menu will be displayed.

   b. Click on **Unix Shell** in the pull-down menu. A Unix xterm window pops up allowing Unix commands to be entered.

   c. Type the following Unix command in the xterm window:

       su root and press the **<Enter>** key.

       The shell responds with a prompt to enter root passwords.

   d. Type the password for the root and press the **<Enter>** key.

       The shell changes its prompt to a pound sign to indicate Unix commands entered will have root authority.

   e. Type the following Unix command in the xterm window:

       rsh 5MP /sbin/shutdown -i0 -g0 -y and press the **<Enter>** key.

       The shell command prompt returns after using a confirmation of shutdown initiation on 5MP. Unix on Processor 5MP shuts down.

f.   Type the following Unix command in the xterm window:

rsh 1FEP /sbin/shutdown -i0 -g0 -y and press the **<Enter>** key.

The shell command prompt returns after issuing a confirmation of shutdown initiation on 1FEP. Unix on Processor 1FEP shuts down.

g.   Type the following Unix command in the xterm window:

rsh 2FEP /sbin/shutdown -i0 -g0 -y and press the **<Enter>** key.

The shell command prompt returns after issuing a confirmation of shutdown initiation on 2FEP. Unix on Processor 2FEP shuts down.

h.   Type the following Unix command in the xterm window:

rsh 4BKUP /sbin/shutdown -i0 -g0 -y and press the **<Enter>** key.

The shell command prompt returns after issuing a confirmation of shutdown initiation on 4BKUP. Unix on Processor 4BKUP shuts down.

i.   Type the following Unix commands in the xterm window:

cd / and press the **<Enter> key.**

/sbin/shutdown -i0 -g0 -y and press the **<Enter>** key. Each CRS processor for the system may be safely powered down when Unix indicates shutdown is complete, and the system responds with the message: (***Press any key to reboot).***

Do not reboot any machine, go to step 1.3

1.3   Power-down all CRS equipment at the operator's station and in the equipment room by turning off the following:

Operators Station	Equipment Room
0MP and Monitor	4BKUP
5MP and Monitor	1FEP
NWRSAME (all)	2FEP
	LAN Bridge
	LAN Server
	Monitor
	Printer
	ASA power supplies
	Modem

PART 2 - EQUIPMENT UPGRADE PROCEDURE

> **Note: Preliminary setup of the new FEPs, steps 2.1 through 2.2d maybe performed prior to starting the system modification. This will save downtime of a CRS system that is currently operational**.

> **NOTE: Removing and replacing circuit cards must be accomplished in an anti-static work area using approved anti-static procedures.**

> **NOTE: A Modification Data Pad is provided in attachment D. Technicians are asked to complete the form while performing the modification. Use the completed form to assist in reporting serial number data in the EMRS.**

2.1   Remove the right side cover of the new **3FEP** unit using the following procedure:

    a. Access the interior of the FEP's by removing the right three screws located on the back of the system unit. These screws secure the right side access panel of the system to the chassis (see figure A-1, page B-2). Pull the panel backward and lift upward.

    b. On 3FEP remove the screws that holds slot covers 1 through 6 in place and retain the screws.

    c. Install the new LAN card (ASN: B440-1A8A10) in expansion slot number 1 and reinstall a retaining screw.

    d. Installation of the Hard Disk Drive (HDD) and cage combination in 3FEP. Align the three slides on the HDD cage with the three slots on the upper left corner of the chassis. Insert the slides into the slots holding the HDD cage at an angle away from the chassis. Once the slides have been inserted, slide the HDD cage towards the bottom of the chassis. Now swing the HDD cage into the chassis body. Once the HDD cage is installed, align the two screw slots at the top with the threaded holes in the chassis. Secure the HDD cage with two screws. Also secure the HDD cage with a single screw at the tab located at the lower right corner of the HDD cage.(figure A-13, page B-5).

    e. Hook up the hard disk drive cable to the HDD. Cable connectors are keyed and will only fit one way. Connect the other end of the HDD cable to the SCSI port on 2FEP motherboard.

    f. Connect a power connector from the power supply to the hard disk drive.

2.2   Configure the DECtalk cards for the appropriate I/O address.

NOTE: Depending on the CRS site configuration, there may be as many as five DECtalk cards per front-end processor, located in slots two through six.

Table 1. DECtalk Card Switch 2 (SW2) Settings

Module #	SW2-1	SW2-2	SW2-3	SW2-4	SW2-5	SW2-6	I/O Address	PC Slot
0	off	off	off	on	off	off	240	2
1	off	on	off	on	off	off	250	3
2	on	off	on	off	off	on	328	4
3	off	off	on	on	off	on	360	5
4	off	off	off	off	on	on	380	6

NOTE: Regardless of FEP, DECtalk card configuration remains constant, meaning that modules 0,1,2,3,4 are configured the same for each FEP.

a. Using Table 1, set up a DECtalk card with the I/O address: 240
    - Install the DECtalk card into Slot 2 of 3FEP and reinstall a retaining screw.

b. Using Table 1, set up a DECtalk card with the I/O address: 250
    - Install the DECtalk card into Slot 3 of 3FEP and reinstall a retaining screw.

c. Using Table 1, set up a DECtalk card with the I/O address: 328
    - Install the DECtalk card into Slot 4 of 3FEP and reinstall a retaining screw.

d. Using Table 1, set up a DECtalk card with the I/O address: 360
    - Install the DECtalk card into Slot 5 of 3FEP and reinstall a retaining screw.

e. Using Table 1, set up a DECtalk card with the I/O address: 380
    - Install the DECtalk card into Slot 6 of 3FEP and reinstall a retaining screw.

f. Replace the 3FEP cover removed using the reverse procedure in paragraph 2.2a.

Note: Perform step 1 prior to proceeding

2.3 Set up of the 2FEP computer

    a. Remove all cabling from the 2FEP computer, noting the cable markings for reinstallation.

    b.   Remove 2FEP to a anti-static work area.

    c. Perform step 2.1.a on 2FEP.

    d. Remove the screw that holds 2FEP slot 5 cover in place and retain the screw.

    e. Using Table 1, set up a DECtalk card with the I/O address: 360
        - Install the DECtalk card into Slot 5 of 2FEP and reinstall a retaining screw.

    f. Replace the 2FEP cover removed using the reverse procedure in paragraph 2.2a.

2.4 Install 2FEP and 3FEP Computers. (ASN: B440-2A2)

    a. Install 2FEP and 3FEP in the CRS Main Unit Cabinet.

    b. Reinstall the 2FEP Switch VGA Video Cable (ASN: B440-2W3) between 2FEP video out and switch position B.

    c. Install the new 3FEP Switch VGA Video Cable (ASN: B440-2W3) between 3FEP video out and switch position C.

    d. Reinstall the 2FEP Switch PS/2 Keyboard Cable (ASN: B440-2W4) between 2FEP keyboard connection and switch position B.

    e. Install the new 3FEP Switch PS/2 Keyboard Cable (ASN: B440-2W4) between 3FEP keyboard connection and switch position C.

    f. Reinstall the LAN cable segment (ASN: B440-2W1) and BNC Tee (ASN: B440-4J1) connector to connect the 2FEP PC into the existing CRS LAN (2FEP shall be connected between 4BKUP and 3FEP). (See figure A-15, pg B-6).

    g. Install the new LAN cable segment (ASN: B440-2W1) and BNC Tee (ASN: B440-4J1) connector to connect the 3FEP PC into the existing CRS LAN (3FEP shall be connected between 2FEP and 5MP). (See figure A-15, pg B-6).

2.4   Installing ASM cards.

Detailed installation procedures are shown in steps 2.4.a through 2.4.m. The jumper settings are provided in Table 2 below.

Table 2. ASM Card Jumper Settings

NOTE: **There are five jumpers to be set on each ASM card.**

Table 2				
	ASA Slot #	Silence Alarm Jumper "JP1"	ACP Channel Sel. Jumper "JP2" & "JP3"	BKUP Live/ Playback Cntrl Jumper "JP4"	FEP Select Jumper "JP5"
ASM 1 (channel 1)	1	EN (Enable)	1	BUL2	FEP1
ASM 2 (channel 2)	2	EN (Enable)	2	BUL2	FEP1
ASM 3 (channel 3)	3	EN (Enable)	3	BUL2	FEP1
ASM 4 (channel 4)	4	EN (Enable)	4	BUL2	FEP1
ASM 5 (channel 5)	5	EN (Enable)	5	BUL2	FEP2
ASM 6 (channel 6)	6	EN (Enable)	6	BUL2	FEP2
ASM 7 (channel 7)	7	EN (Enable)	7	BUL2	FEP2
ASM 8 (channel 8)	8	EN (Enable)	8	BUL2	FEP2
ASM 9 (channel 9)	9	EN (Enable)	9	BUL2	FEP3
ASM 10 (channel 10)	10	EN (Enable)	10	BUL2	FEP3
ASM 11 (channel 11)	11	EN (Enable)	11	BUL2	FEP3

ASM 12 (channel 12)	12	EN (Enable)	12	BUL2	FEP3
ASM 13 (channel 13)	13	EN (Enable)	13	BUL2	FEP3
ASM PB1 (mon/playback chan 1)	PB1	DIS (Disable)	PB1	PB	FEP1
ASM PB2 (mon/playback chan 2)	PB2	DIS (Disable)	PB2	PB	FEP2

a. Remove the ASA slot 8, 9, 10, 11, 12, and 13 covers by removing the two screws.

b. Take one of the new ASM cards (ASN: B440-2A6A3) and set the jumpers for slot 7 of the ASA in accordance with **Table 2**.

c. Install the new ASM card into Slot 7 of the ASA chassis and tighten the two screws.

d. Take one of the new ASM cards (ASN: B440-2A6A3) and set the jumpers for slot 8 of the ASA in accordance with **Table 2**.

e .Install the new ASM card into Slot 8 of the ASA chassis and tighten the two screws.

f. Take one of the new ASM cards (ASN: B440-2A6A3) and set the jumpers for slot 9 of the ASA in accordance with **Table 2**.

g. Install the new ASM card into Slot 9 of the ASA chassis and tighten the two screws.

h. Take one of the new ASM cards (ASN: B440-2A6A3) and set the jumpers for slot 10 of the ASA in accordance with **Table 2**.

i. Install the new ASM card into Slot 10 of the ASA chassis and tighten the two screws.

j. Take one of the new ASM cards (ASN: B440-2A6A3) and set the jumpers for slot 11 of the ASA in accordance with **Table 2**.

k. Install the new ASM card into Slot 11 of the ASA chassis and tighten the two screws.

l.   Take one of the new ASM cards (ASN: B440-2A6A3) and set the jumpers for slot 12 of the ASA in accordance with **Table 2**.

m. Install the new ASM card into Slot 12 of the ASA chassis and tighten the two screws.

n.   Take one of the new ASM cards (ASN: B440-2A6A3) and set the jumpers for slot 13 of the ASA in accordance with **Table 2**.

o.   Install the new ASM card into Slot 13 of the ASA chassis and tighten the two screws.

2.5   DECtalk-ASM Audio Cable Installation.

Table 3 DECtalk to ASM Audio Cables

Table 3		
From	To	Cable Label
1FEP DECtalk 1 "J2" Port	ASM 1 "IN Port"	1-1
1FEP DECtalk 2 "J2" Port	ASM 2 "IN Port"	1-2
1FEP DECtalk 3 "J2" Port	ASM 3 "IN Port"	1-3
1FEP DECtalk 4 "J2" Port	ASM 4 "IN Port"	1-4
2FEP DECtalk 1 "J2" Port	ASM 5 "IN Port"	2-1
2FEP DECtalk 2 "J2" Port	ASM 6 "IN Port"	2-2
2FEP DECtalk 3 "J2" Port	ASM 7 "IN Port"	2-3
2FEP DECtalk 4 "J2" Port	ASM 8 "IN Port"	2-4
3FEP DECtalk 1 "J2" Port	ASM 9 "IN Port"	3-1
3FEP DECtalk 2 "J2" Port	ASM 10 "IN Port"	3-2
3FEP DECtalk 3 "J2" Port	ASM 11 "IN Port"	3-3
3FEP DECtalk 4 "J2" Port	ASM 12 "IN Port"	3-4
3FEP DECtalk 5 "J2" Port	ASM 13 "IN Port"	3-5
1FEP DECtalk 5 "J2" Port	ASM PB1 "IN Port"	1-5
2FEP DECtalk 5 "J2" Port	ASM PB2 "IN Port"	2-5

       a.   Using write-on cable labels, mark and connect the DECtalk-ASM audio cables in accordance with Table 3.

2.6   Install the new transmitter Audio Output Cables.

       a.   Install new cable to connect the "OUTput 1" port of new ASM card at Slots 8, 9, 10, 11, 12, and 13 of the ASA chassis to the Demarc Panel position for the new transmitters.

       b.   Install new NWRSAME Encoders (if available) to the top panel of the 5MP workstation (if available).

       c.   Install the Encoder-ACP Interface Cable (ASN: B440-1A5W4) from the NWRSAME Encoder rear connector to the "SAME Input 1" port of ACP2 rear panel (this connects to pins 2, 6, 7, 9, and 10 of the NWRSAME Encoder).

NOTE: This completes the hardware modification.

2.7   Verify the new Maximum 13 system physical configuration using attachment **C**.

PART 3 - CRS SYSTEM POWER-UP PROCEDURE

3.1 Power up FEP

    a. The power **ON/OFF** switches and power LED indicators for the FEPs are located on the front of the enclosures (center right). To power up the FEPs, press the **ON/OFF** switches. A green power LED on each FEP will be lit indicating that power is on. The FEPs can be powered up in any sequence.

    b. Following activation of the power switches, the FEPs will go through a memory check, will display the system configuration, as recognized by BIOS, and will then boot the embedded operating system.

Note: **Since the FEPs share a common console through the shared console switch, the monitoring of the power-on and boot process is limited to the FEP currently switched in. The remaining FEPs will need to be selected by the *monitor select switch* and *F1* pressed to complete the boot process of the selected FEP.**

       - The file system will then be checked automatically. During the file system check, various messages will appear on the console screen relating to the system check and to the system processes being executed.

       - At the completion of the boot process, the console will display the login prompt.

       - The FEPs having the CRS application as part of the embedded operating system will automatically initialize to a pre-set level and then wait for final startup commands from the MP.

       S Power up all remaining Equipment Room equipment. i.e. modem, printer, Lan Bridge, Lan server, and the ASC power supplies.

3.2 Power up Main Processors.

NOTE: **Power up 0MP as the master main processor and 5MP as the shadowing processor.**

    a. The power **ON/OFF** switches and power LED indicators for the MPs are located on the front of the enclosures (center right). To power up the MPs, press the **ON/OFF** switches. A green power LED on each MP will then be lit indicating that power is on.

       - Following activation of the power switches, the MPs will go through a memory check, will display the system configuration, as recognized by BIOS, and will then boot the UNIX operating system.

- The file systems will then be checked automatically. During the file system checks, various messages will appear on the workstation screen relating to the system check and to the system processes being executed.
- At the completion of the boot process, the workstation monitor will display the user log-on screen.

    b. The MPs are now ready for the CRS application software to be initialized.

NOTE: Whenever the MPs are powered up they automatically step through the boot process to the multi-user mode without operator intervention.

3.3 CRS application software installation on the new FEP.

    a. You will need the CD that has your current version of software loaded on the CRS system.

    b. Logon as root from an MP workstation at the CRS Login Screen. In the Login ID block type in **root**, then tab to the password block and type in your root password. This will place the operator in the Windows Desktop.

    c. From the Desktop select the icon labeled **Admin_Tools**. This will bring up the Admin Tools window.

    d. From the Admin Tools window select the icon labeled **App_Installer**. This will bring up the Installation window. This window will be divided into two windows. All procedures that follow will be accomplished in the upper window. At this point place the CD with the CRS software into the CD-ROM.

    e. From the Installation window select **CD-ROM_1** as your media to install from. When this has been selected there will be three icons appear in the labeled **crsopsais** (auto installer), **crsopsfpm** (FEP multi-pack), **crsopsmpm** (MP multi-pack). Select **crsopsais**, then click the **Install** button on the right side of the window. This will start the installation script.

    f. The installation script will stop for you to make a selection of the installation type. The following statement will be displayed:

                  Build 6.0 installation options.
                  a) all processors (0MP, 5MP, 1FEP, 2FEP, 3FEP, 4BKUP)
                  f) front-end processors (1FEP, 2FEP, 3FEP, 4BKUP)
                  m) master processors (0MP, 5MP)
                  s) specific processor
                  Select Installation Option (default: a)

    Type in an **a** press <**Enter**>.   At this point go back to the equipment rack an ensure the Monitor Select switch is selected for the new FEPs. If it is not when the installation script

reboots the new FEPs the reboot will stop. In this case, select the new FEPs position (one at a time) and press F1 to continue the boot process.

g. Once **a** has been selected the installation process is automatic. Follow the on screen instructions and answer any questions asked.

PART 4 - OPERATOR TERMINAL LOGON

4.1 LOGON Overview.

The CRS Login Screen is provided to allow you to log onto CRS. This screen contains two fields, i.e., Login ID and Password, as well as four buttons, i.e., *Login*, *Reset*, *Exit*, and *Help*. The fields are provided to allow you to key in your assigned Login ID and Password. For Login ID, there are three acceptable inputs: "open" (for operator), "admin" (for system administrator), and "main" (for maintenance technician). The buttons are defined as follows:

a. *Login*. Clicking this button (or typing an "l" for login) allows you to log onto the CRS after having typed in your Login ID and Password.

Note: You can also complete the login by merely pressing the <enter> key after typing in your password.

b. *Reset*. Clicking this button (or typing an "r" for reset) removes any text you may have typed in the Login ID and Password fields.

c. *Exit*. Clicking this button (or typing an "e" for exit) causes the X Window to terminate and returns to a character-based Console Login prompt. Further, the Console Login prompt for the "Shadow" processor may disappear. (If this happens, run "nudge_xdm" script on the 0MP processor as "root." If this fails, the MPs must be rebooted).

d. *Help*. Clicking this button (or typing an "h" for help) results in the display of help information pertinent to the CRS Login Screen and login operation.

Upon entering your Login ID and Password, pressing the **<Enter>** key (or clicking the *Login* button), the CRS Main Display will be presented.

PART 5 - UPDATE THE SNQM CONFIGURATION FILE

5.1 SNQM configuration overview**.**

This procedure is required to update the CRS Application Software with the MAC address of the new FEPs.

NOTE: The CRS System will not successfully come up if it is restarted prior to executing this script file.

5.2 Updating the SNQM file.

a. From 0MP, Click on the **Maintenance** menu. A maintenance pull-down menu will be displayed.

b. Click on **Unix Shell** in the pull-down menu. A Unix xterm window pops up allowing Unix commands to be entered.

c. Telnet, rsh, rlogin or ping the new FEP to check communication over the network. This script file is dependent on being able to "rsh" (remote shell) to each processor on the CRS network.

d. Type **su root** and press the **<Enter>** key.

The shell responds with a prompt to enter the root password.

e. Type the password for the root and press the **<Enter>** key.

The shell changes its prompt to a pound sign to indicate the Unix commands entered have root authority.

f. Type cd /crs/bin and press the **<Enter>** key.

This changes the directory to /crs/bin.

g. Type ./QM_SSR.ksh -a and press the **<Enter>** key.

This will execute this Script file and update the /crs/data/QM/QM_SSR.CFG file on all of the processors in the CRS system.

The Message Monitor will show that each processor was updated starting with 1FEP.

PART 6 - LOADING THE CRS DATABASE FROM THE ASCII FILE

6.1   Database loading overview:

The CRS database is loaded from the ASCII database file. Since the database exists on an ASCII text file, it can be modified off-line from the CRS computer on any DOS machine. Once the ASCII file is copied from diskette onto the CRS computer using the UNIX **doscp** command, it is loaded into the CRS database via the **XCRS_SITE** database compilation GUI utility. After selecting the appropriate ASCII database file to modify, the **Start Site Configuration** button starts the database loading process. Following successful compilation, the CRS system can be brought up and the new database will be loaded.

> **NOTE: The following instructions for loading the database assume that everything is being done with 0MP set as the Master Processor.**

6.2   Database loading from the floppy instructions:

a.   Place diskette with CRS ASCII database text files in 0MP diskette drive and copy desired file from diskette to CRS. Type the following:

   doscp a:filename /crs/data/SS/filename and press the **<Enter>** key.

> **NOTE: Where filename is the name of the ASCII database text file to be used.**

b.   Click and hold the left mouse button on any white space, move the cursor to select **XCRS_SITE**, and release the button to bring up the **XCRS_SITE** window.

c.   Click on **Select ASCII Site Setup** button to bring up the list of ASCII files.

d.   Select the desired ASCII database filename that you copied from the diskette in step 6.2.a. and double click.

Note: The directory selection block has a default directory name of "/crs/data/SS", and the file filter block has a default file name of "/crs/data/SS/*.ASC." If the desired filename does not appear, it may have copied it to the wrong directory in step 6.2.b. If that is the case, change the default directory name to the directory specified in step 6.2.b. The other reason that the filename does not appear is because it is being filtered out. Remember that UNIX is case sensitive and that if you copied it with a "asc" extension. that was in lower case, it will not appear. Simply change the filter file name to "/crs/data/SS/*.asc", and the filename will appear.

e.   Select **Initialize System Configuration and Database** to ensure that the entire system database and configuration will be erased and replaced.

f. Click on **Start Site Configuration** button. The "working" message and the "wristwatch" will appear. Many messages will scroll by. The last message will refer to copying the ASCII database file to the 5MP, and the "wristwatch" will disappear.

g. When the compilation is completed, restart CRS by clicking on **Start CRS System**.

h. Compose a short test message that will play on all channels to verify the hardware modifications.

NOTE: Before loading your site specific ASCII Database file, be sure to edit the database file to reflect the changes made to the hardware configuration.

PART 7 - ASM Alignment

NOTE: The output of each added ASM card must be verified before placing in service.

7.1 Alignment Procedures.

The following alignments must be conducted in the proper sequence, verify ACP "**Ref.**" Mark
Alignment and then the ASM Card Alignment.

**NOTE: Verify the "Ref." mark alignment. If the alignment is satisfactory, perform the ASM
card Alignment. If the "Ref." mark alignment is unsatisfactory, the "Ref." mark
alignment must conducted and then all ASM cards aligned.**

7.2 Verify ACP "Ref." Mark Alignment.

The ACP "**Ref.**" mark alignment can be performed independently and does not require the
use of any tool.

7.2.1   CRS System Setup.

Set up the CRS for Back Up Live (BUL). No system database is required.

7.2.2   Channel Calibration Procedures.

NOTE: *Transmitter "x" in this procedure refers to the channel under test.*

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a.   Set the index mark on the **tone volume control** knob to the **"Ref."** position.

b.   To start BUL on Channel **x**, push the "**Transmitter x**" button and the "**Enable**" button in
sequence. These controls are in the **"BACKUP LIVE"** block area on the ACP front panel.

NOTE: Do not send audio to a transmitter while performing this procedure.

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c.   Push the "**Alert Tone 1**" button to cause the ACP to generate the 1050 Hz Warning Alert
Tone (WAT). Observe the VU meter on the ACP front panel.

NOTE: The duration of 1050 Hz WAT is 10 seconds.

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d.   If the VU meter does not indicate a reading of **0** dBm, adjust the tone volume control until
that level is obtained.

e.   Repeat steps c. and d. until a reading of **0** dBm is obtained.

    f.   To stop BUL, first push the "**Enable**" button and then push the "**Transmitter x**" button.

7.3 ASM Card Alignment.

7.3.1   Required Equipment:

The following equipment is required:

a.   dB Meter to read the audio signal level,

b.   Small jeweler's screw driver, and

c.   600-ohm dummy load with RJ11 plug attached.

7.3.2   CRS System Set Up.

Set up the CRS for BUL. No system database is required.

7.3.3   Alignment Procedures.

a.   Set the index mark on the tone volume control knob to the **"Ref."** position.

b.   Start BUL on ASM output channel No.**x** by first pushing the "**Transmitter x**" button and the "**Enable**" button. These buttons are located in the BACKUP LIVE block area on the ACP front panel.

c. Plug the RJ-11 connector (with the 600-ohm load attached) into the RJ-11 jack of **OUT 1** on the ASM of Transmitter **x** (output channel no. **x**). Connect the dB meter across the 600-ohm load.

d. Push the "**Alert Tone 1**" button to send a WAT to the **OUT 1** jack of ASM card No. 1. Measure and record the signal level in dB across the 600-ohm load.

e. Using a small jeweler's screw driver, adjust the transmitter gain control potentiometer through the ASM front panel until a reading of **0** dBm is measured across the 600- ohm load.

NOTE: **The WAT output from the ACP nominally lasts 10 seconds. It is recommended that a second person push the "Alert Tone 1" button for a near continuous tone output. This will smooth out the calibration effort and minimize the time required.**

NOTE: **Primary ("Out1") and secondary ("Out2") outputs are two independent outputs. However, the output level of "Out1" is affected by approximately 1.5 dB if "Out2" is "loaded."**

NOTE: **During BUL, the VU meter monitors the ACP tone output, not the output of the ASM card. The ACP tone output is sent to the ASM card via the ASC for final output.**

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f. Repeat steps d. and e. until a reading of **0** dBm is obtained for the channel under test.

g. To stop BUL, first push the "**Enable**" button and then push the "**Transmitter x**" button.

h. Repeat steps 7.3.3.a through 7.3.3.f to align each of the new ASM cards in the system. Remember that each ASM card output is activated by pushing the respective **"Transmitter (x)"** button and then the "**Enable**" button.

Table 2 - Voltages <u>vs</u> dBm (into 600-ohm load)

dBm	RMS	P-P	dBm	RMS	P-P	dBm	RMS	P-P
10	2.440	6.93	-4	0.480	1.35	-17	0.110	0.301
9	2.183	6.17	-5	0.430	1.20	-18	0.097	0.270
8	1.946	5.50	-6	0.390	1.03	-19	0.087	0.240
7	1.734	4.90	-7	0.345	0.96	-20	0.0775	0.215
6	1.546	4.37	-8	0.306	0.85	-21	0.690	0.194
5	1.377	3.89	-9	0.275	0.76	-22	0.061	0.170
4	1.228	3.47	-10	0.245	0.68	-23	0.054	0.152
3	1.094	3.01	-11	0.213	0.61	-24	0.048	0.135
2	0.975	2.75	-12	0.192	0.54	-25	0.043	0.120
1	0.869	2.46	-13	0.173	0.48	-26	0.039	0.108
0	0.775	2.15	-14	0.154	0.43	-27	0.034	0.096
-1	0.690	1.94	-15	0.138	0.38	-28	0.031	0.085
-2	0.610	1.70	-16	0.125	0.34	-29	0.028	0.076
-3	0.540	1.52				-30	0.024	0.068